

Table S4. Unknown Mutant Reaction Turnover Numbers. Empty entries indicate unmodified parameters.

Name	Reaction	k_{cat} (s ⁻¹)	
		Wild-Type	Mutant
Acetate kinase	AcP + ADP \leftrightarrow Ac + ATP	100.59	53.15
Cytidylate kinase	ATP + CMP \leftrightarrow ADP + CDP	103.25	8.00
Enolase	G2P \leftrightarrow H ₂ O + Pep	300.87	573.46
Fructose-bisphosphate aldolase	Fdp \leftrightarrow DHAP + GAP	23.34	26.06
Glucose-6-phosphate isomerase	G6P \leftrightarrow F6P	1218.79	245.80
Methionine adenosyltransferase	ATP + H ₂ O + Met \rightarrow AdoMet + Pi + PPi	0.11	0.06
Phosphotransacetylase	Ac-CoA + Pi \leftrightarrow AcP + CoA	1620.91	146.41
Pyruvate dehydrogenase	CoA+NAD+Pyr \leftrightarrow Ac-CoA+CO ₂ +NADH	1128.31	456.00
Thiamine kinase	ATP + dTMP \leftrightarrow ADP + dDTDP	0.07	
Triose-phosphate isomerase	DHAP \leftrightarrow GAP	816.67	53.65